

REMARKS

In response to the objection of the specification and drawings, the specification and drawings of the invention has been amended. In response to the objection of Claims 26 and 30, Claims 26 and 30 have been amended. Applicants confirm election of the claims of Group II and have canceled the claims of Group I.

Reconsideration of the application is respectfully requested for the following reasons:

Rejection of Claims 14, 17 and 21 Under 35 U.S.C. § 112

In response to the rejection of Claims 14, 17 and 21 Under 35 U.S.C. § 112, second paragraph, Applicants have amended these claims. Reconsideration of these claims is respectfully requested.

Rejection of Claims 14-16, 20-23 and 27-29 Under 35 U.S.C. § 102(b)

Claims 14-16, 20-23 and 27-29 are rejected under 35 U.S.C. §102(b) as being anticipated by Takenouchi et al. (U.S. 5,744,758) .

In response to the rejection of Claims 14-16, 20-23 and 27-29 under 35 U.S.C. §102(b) as being anticipated by Takenouchi, Applicants have amended Claims 14-30 and added Claims 31-35.

Takenouchi teaches a multilayer circuit board including a plurality of substrates. Each of the substrates includes a thermosetting resin film having respective surfaces, a metal layer formed on the one of the surfaces and a thermoplastic polyimide film formed on the other surface. Each of the substrates has at least one via hole, which is filled with thermoplastic polyimide resin containing electrically conductive material to form an electrically conductive via. The metal

layer is defined as a predetermined circuit pattern electrically connected to the via. The plurality of substrates are laminated in such a manner that the substrate is adhered to an adjacent one by means of the thermoplastic polyimide film. As shown in FIG. 1 of Takenouchi, the respective substrate 12 is formed of a blank composed of a thermosetting resin film 14 carrying a metallic layer on one side and a thermoplastic polyimide layer 16 on the other side. The substrate 12 has a via-hole 18 filled with an electro-conductive thermoplastic polyimide containing an electro-conductive material to form a via 20 and a circuit pattern 22 of a desired shape formed of the metallic layer of the substrate blank, wherein the via 20 and the circuit pattern are electrically connected with each other.

It is quite clear that one with ordinary skill in the art would not anticipate the claimed invention by the teaching of Takenouchi since Takenouchi does not disclose every element of the claimed invention. For example, the metallic layer 22 is formed on one side of the substrate 12 or is completely exposed before being laminated with other substrate 12. The formation process of the metallic layer 22 is further shown in FIGS. 4(a) to 4(f) of Takenouchi. As shown in FIGS. 4(a), a blank 11 is used, in which the blank 11 is composed of a thermosetting resin film 14 carrying a metallic layer 13 of copper foil or others on one side and a thermoplastic polyimide layer 16 on the other side. The metallic layer 22 is formed by forming a photosensitive resist film 17 on the metallic layer 13, developing the photosensitive resist film 17 to form a resist pattern 17a as shown in FIG. 4(e), and then, etching the metallic layer 13 by using the resist pattern 17a as a mask. It is therefore that Takenouchi does not disclose the circuit metal layer of the claimed invention. Furthermore, the thermosetting resin film 14 and the thermoplastic polyimide layer 16 of Takenouchi can not be treated as the first and second dielectric layers of the claimed invention since none of these two layers is on the metallic layer 22. Moreover, Takenouchi does not teach a barrier metal layer used as a stop layer to protect the metal layer in another side (i.e. patterned conductive layer or the vias) in the process of forming the vias and

forming the patterned conductive layer. By the barrier metal layer, the patterned density of the claimed invention is higher than that disclosed by Takenouchi. It is therefore that the disclosure of Takenouchi is insufficient to render the claimed invention unpatentable.

Claims 14, 17-18, 20, 24-25 and 27-29 are rejected under 35 U.S.C. §102(e) as being anticipated by Farquhar et al. (U.S. 6,764,748) .

Applicants have found that the teaching of Farquhar lacks statutory basis to render the claims unpatentable. The claimed invention is entitled to the right of priority according to 35 U.S.C. §119. Particularly, the filing date of first foreign application in TW/091134865 (November 29, 2002) is earlier than the filing date of Farquhar et al. (U.S. 6,764,748) . Thus, the basis of this rejection does not exist.

Rejection of Claims 14-30 Under 35 U.S.C. § 103(a)

Claims 14-30 are rejected under 35 U.S.C. §103(a) as being unpatentable over Takenouchi in view of Farquhar.


Applicants have found that the teaching of Farquhar lacks statutory basis to render the claimed unpatentable. The claimed invention is entitled to the right of priority according to 35 U.S.C. §119. Particularly, the filing date of first foreign application in TW/091134865(November 29, 2002) is earlier than the filing date of Farquhar et al. (U.S. 6,764,748) . Thus, the basis of this rejection does not exist. Therefore, the combination of Takenouchi and Farquhar is insufficient to render the claimed invention unpatentable.

CONCLUSION

In light of the above remarks and amendments to the claims, Applicants contend that claimed invention is patentable thereover. Claims 14-35 are now in condition for favorable consideration and allowance of Claims 14-35 are most respectfully requested.

Respectfully submitted,
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I hereby certify that this paper (along with any paper referred to as being attached or enclosed) is being deposited with the United States Postal Service on the date shown below with sufficient postage as first class mail in an envelope addressed to Mail Stop Amendment, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450, on
Date: Dec. 20, 04 By: Cathi L.G. Thoorsell
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In the drawings:

The attached sheets of drawings include changes to FIG. 4H, FIG. 4I, FIG. 6D and FIG. 6E. The sheet, which includes FIGs. 4H and 4I, replaces the original sheet including FIG. 4H and 4I. The sheet, which includes FIG. 6D and 6E, replaces the original sheet including FIG. 6D and 6E.